

What is claimed:

1. A catalyst composition comprising
 - (a) zeolite,
 - (b) aluminum phosphate, and
 - (c) metal phosphate present in an amount sufficient for the metal phosphate to at least function as a binder for the zeolite and the metal is other than aluminum.
2. A catalyst composition according to claim 1 wherein the metal of (c) is selected from the group consisting of Group IIA metals, lanthanide series metals, scandium, yttrium, lanthanum, and transition metals.
3. A catalyst composition according to claim 1 wherein the metal of (c) is selected from the group consisting of iron, lanthanum and calcium.
4. A catalyst composition according to claim 1 comprising at least 5% by weight of the metal phosphate as measured by amount of the metal's corresponding oxide present in the composition.
5. A catalyst composition according to claim 1 comprising about 4% to about 50% by weight of the metal phosphate as measured by amount of the metal's corresponding oxide present in the composition.
6. A catalyst composition according to claim 5 further comprising a member of the group consisting of clay, silica, alumina, silica-alumina, yttria, lanthana, ceria, neodymia, samaria, europia, gadolinia, titania, zirconia, praseodymia and mixtures thereof.
7. A catalyst composition according to claim 1 wherein zeolite (a) is selected from ZSM-5, beta zeolite, mordenite, ferrierite and any other zeolite having a silica to alumina molar ratio of twelve or greater.

8. A catalyst according to claim 1 wherein the zeolite is ZSM-5.
9. A catalyst according to claim 2 wherein the zeolite is ZSM-5.
10. A catalyst according to claim 3 wherein the zeolite is ZSM-5.
11. A catalyst according to claim 4 wherein the zeolite is ZSM-5.
12. A catalyst according to claim 5 wherein the zeolite is ZSM-5.
13. A catalyst according to claim 6 wherein the zeolite is ZSM-5.
14. A catalyst composition according to claim 1 wherein the composition is particulated and fluidizable.
15. A catalyst composition according to claim 14 wherein the catalyst has a mean particle size in the range of 20 to 150 microns.
16. A catalyst composition according to claim 1 wherein the composition is in the form of an extrudate or pellet.
17. A catalyst composition according to claim 1 wherein the composition has a Davison Attrition Index in the range of 0 to about 30.
18. A catalyst composition according to claim 1 wherein the composition has a Davison Attrition Index in the range of 0 to about 20.
19. A catalyst composition comprising
 - (a) zeolite,
 - (b) metal phosphate present in an amount sufficient for the metal phosphate to at least function as a binder for the zeolite and the metal

is other than aluminum, wherein the metal phosphate comprises at least 5% by weight of the catalyst composition as measured by amount of the metal's corresponding oxide.

20. A catalyst composition according to claim 19 wherein the metal is selected from the group consisting of Group IIA metals, lanthanide series metals, scandium, yttrium, lanthanum, and transition metals.
21. A catalyst composition according to claim 19 wherein the metal is selected from the group consisting of iron, lanthanum and calcium.
22. A catalyst composition according to claim 19 further comprising a member of the group consisting of clay, silica, alumina, silica-alumina, yttria, lanthana, ceria, neodymia, samaria, europia, gadolinia, titania, zirconia, praseodymia and mixtures thereof.
23. A catalyst composition according to claim 19 wherein the zeolite is selected from ZSM-5, mordenite, ferrierite and any other zeolite having a silica to alumina molar ratio of twelve or greater.
24. A catalyst according to claim 19 wherein the zeolite is ZSM-5.
25. A catalyst according to claim 20 wherein the zeolite is ZSM-5.
26. A catalyst according to claim 21 wherein the zeolite is ZSM-5.
27. A catalyst according to claim 22 wherein the zeolite is ZSM-5.
28. A catalyst composition according to claim 19 comprising about 4% to about 50% by weight of the metal phosphate as measured by amount of the metal's corresponding oxide present in the composition.

29. A catalyst according to claim 28 wherein the zeolite is ZSM-5.
30. A catalyst composition according to claim 19 wherein the composition is particulated and fluidizable.
31. A catalyst composition according to claim 30 wherein the catalyst has a mean particle size in the range of 40 to 150 microns.
32. A catalyst composition according to claim 19 wherein the composition has a Davison Attrition Index in the range of 0 to about 30.
33. A catalyst composition according to claim 19 wherein the composition has a Davison Attrition Index in the range of 0 to about 30.
34. A method for catalytic cracking of hydrocarbons that comprises reacting a hydrocarbon under catalytic cracking conditions in the presence of a catalyst comprising
 - (a) zeolite,
 - (b) aluminum phosphate,
 - (c) metal phosphate present in an amount sufficient for it to at least function as a binder for the zeolite and the metal is other than aluminum.
35. A method according to claim 34 wherein the metal of (c) is selected from the group consisting of Group IIA metals, lanthanide series and Group VIII metals.
36. A method according to claim 34 wherein the metal of (c) is selected from the group consisting of iron, lanthanum and calcium.

37. A method according to claim 34 wherein the catalyst comprises at least 5% by weight of the metal phosphate as measured by amount of the metal's corresponding oxide present in the composition.
38. A method according to claim 34 wherein the catalyst comprises about 4% to about 50% by weight of the metal phosphate as measured by amount of the metal's corresponding oxide present in the composition.
39. A method according to claim 34 wherein zeolite (a) is selected from ZSM-5, mordenite, ferrierite and any other zeolite having a silica to alumina molar ratio of twelve or greater.
40. A method according to claim 34 wherein the zeolite is ZSM-5.
41. A method according to claim 34 wherein the metal of (c) is selected from the group consisting of iron, lanthanide series and the cracked hydrocarbons produced by the method have enhanced propylene yields as measured by C_3/C_4 ratio compared to a catalyst composition that does not comprise the metal phosphate binder.
42. A method according to claim 34 wherein the metal of (c) is selected from the group consisting of Group IIA metals and the cracked hydrocarbons produced by the method have enhanced butylene yields as measured by C_3/C_4 ratio compared to a catalyst composition that does not comprise the metal phosphate binder.
43. A method according to claim 34 wherein the method of catalytic cracking is fluidized and the catalyst composition has a mean particle size in the range of 40 to about 150 microns.
44. A method according claim 34 wherein the method is a fixed bed catalytic cracking process and the catalyst composition is in the form of an extrudate.

45. A method according claim 34 wherein the method is a moving bed catalytic cracking process and the catalyst composition is in the form of an extrudate.
46. A method of making a catalyst composition, the method comprising
- (a) combining a source of metal, other than aluminum, with zeolite
 - (b) adding phosphoric acid to (a)
 - (c) processing (b) under conditions sufficient to produce a bound composition comprising zeolite, and a phosphate of the metal from (a) wherein the metal phosphate is present in an amount sufficient to at least function as a binder for the zeolite.
47. A method according to claim 46 wherein the metal of (a) is selected from the group consisting of Group IIA metals, lanthanide series metals, scandium, yttrium, lanthanum, and transition metals.
48. A method according to claim 46 wherein the catalyst composition comprises at least 5% by weight of the phosphate of the metal from (a) as measured by amount of the metal's corresponding oxide present in the composition.
49. A method according to claim 46 where in the source of metal is in the form of a metal salt.
50. A composition comprising (a) a non-zeolitic molecular sieve, and (b) metal phosphate present in an amount sufficient for the metal phosphate to at least function as a binder for the non-zeolitic sieve and the metal is other than aluminum.
51. A composition according to claim 50 wherein the metal of (b) is selected from the group consisting of Group IIA metals, lanthanide series metals, scandium, yttrium, lanthanum, and transition metals.

52. A composition according to claim 50 wherein the nonzeolitic molecular sieve (a) is selected from the group consisting of SAPO, AlPO, and MCM-41.